REMARKS

I. Introduction

In response to the Office Action dated July 1, 2008, claims 1, 10 and 19 have been amended. Claims 1-2, 4-8, 10-11, 13-17, 19-20 and 22-26 remain in the application. Re-examination and re-consideration of the application, as amended, is requested.

II. Prior Art Rejections

In sections (5)-(6), the Office Action rejected claims 1, 8, 10, 17, 19, 20 and 26 under 35 U.S.C. § 103(a) as being unpatentable over McDowell, U.S. Patent No. 6,931,370 (McDowell) in view of Friedman, U.S. Patent No. 5,337,041 (Friedman), in further view of Frlan, U.S. Patent No. 6,047,178 (Frlan). In section (7), the Office Action rejected claims 2, 11 and 20 under 35 U.S.C. §103(a) as being unpatentable over McDowell, in view of Friedman, in further view of Frlan, and in further view of Fiocca, U.S. Patent No. 5,625,743 (Fiocca). In section (8), the Office Action rejected claims 4, 5, 13, 14, 22 and 23 under 35 U.S.C. §103(a) as being unpatentable over McDowell, in view of Friedman, in further view of Frlan, and in view of Kallergis, U.S. Patent No. 4,934,483 (Kallergis). In section (9), the Office Action rejected claims 7, 16 and 25 under 35 U.S.C. §103(a) as being unpatentable over McDowell, in view of Friedman, in further view of Frlan, and in further view of Smith, U.S. Publication No. 2002/0173864 (Smith). In section (10), the Office Action rejected claims 6, 15 and 24 under 35 U.S.C. §103(a) as being unpatentable over McDowell, in view of Friedman, in further view of Frlan, and in further view of Pai, U.S. Patent No. 6,801,886 (Pai).

Applicants' attorney respectfully traverses these rejections.

The pertinent combination of references, namely McDowell, Friedman and Frlan, does not teach or suggest the combination of elements recited in Applicants' independent claims. Specifically, the combination of McDowell, Friedman and Frlan does not teach or suggest automatic measurement of audio presence and level by direct processing of a data stream representing an audio signal, without reconstructing the audio signal, in order to compare the measured audio level against one or more thresholds and then trigger an alarm when one of the thresholds is exceeded, wherein the thresholds are set to generate the alarm based on loss of the audio signal in the data stream, or when an average level of the audio signal in the data stream is too high or too low, in order to monitor the audio presence and level within the data stream and to adjust the audio level as desired.

For example, McDowell merely describes a system for providing interactive audio in a multi-channel audio environment. However, the portions of McDowell cited by the Office Action only include the following:

<u>McDowell: Figure 9</u>

U.S. Patent Aug. 16, 2005 Sheet 9 of 11 US 6,931,370 B1

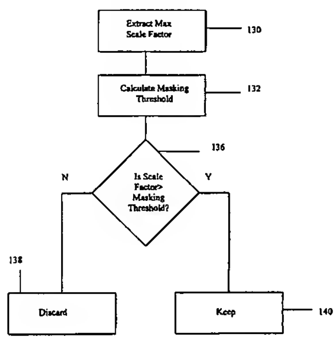

FIG. 9

<u>McDowell: column 3, lines 24-28 (actually, lines 24-41)</u>

More specifically, the components are preferably encoded into a subband representation, compressed and packed into a data frame in which only the scale factors and subband data change from frame-to-frame. This compressed format requires significantly less memory than standard PCM audio but more than that required by variable length code storage such as used in Dolby AC-3 or MPEG. More significantly this approach greatly simplifies the unpack/pack, mix and decompress/compress operations thereby reducing processor utilization. In addition, fixed length codes (FLCs) aid the random access navigation through an encoded bitstream. High levels of throughput can be achieved by using a single predefined bit allocation table to encode the source audio and the mixed output channels. **In the currently preferred embodiment, the audio renderer is hardcoded for a fixed header and bit allocation table so that the audio renderer only need process the scale factors and subband data.**

<u>McDowell: column 10, lines 35-45</u>

As described previously, DTS Interactive mixes the component audio in a compressed format, e.g. subband data, rather than the typical PCM format and thus realizes tremendous computational, flexibility and fidelity benefits. These benefits are obtained by discarding those subbands that are inaudible to the user in two stages. First, the gaming programmer can, based on a

priori information about the frequency content of a specific audio component, discard the upper (high frequency) subbands that contain little or no useful information. This is done off-line by setting the upper band bit allocations to zero before the component audio is stored.

McDowell: column 11, lines 6-11 (actually, lines 1-12)

Second, DTS Interactive unpacks the scale factors (step 120) and uses them in a simplified psychoacoustic analysis (see FIG. 9) to determine which of the audio components selected by the map function (step 54) are audible in each subband (step 124). A standard psychoacoustic analysis that takes into account neighboring subbands could be implemented to achieve marginally better performance but would sacrifice speed. **Thereafter, the audio renderer unpacks and decompresses only those subbands that are audible (step 126). The renderer mixes the subband data for each subband in the subband domain (step 128), recompresses it and formats it for packing as shown in FIG. 4 (item 86).**

McDowell: column 11, lines 58-62 (actually, lines 58-65)

As shown in FIG. 9, the psychoacoustic masking function examines the object list and extracts the maximum modified scale value for each subband of the supplied component streams (step 130). This information is input to the masking function as a reference for the loudest signal that is present in the object list. The maximum scale factors are also directed to the quantizer as the basis for encoding the mixed results into the DTS compressed audio format.

McDowell: column 12, lines 3-8 (actually, col. 11, line 66 – col. 12, line 14)

For DTS-domain filtering, the time-domain signal is not available, so masking thresholds are estimated from the subband samples in the DTS signal. A masking threshold is calculated for each subband (step 132) from the maximum scale factor and the human auditory response. **The scale factor for each subband is compared to the masking threshold for that band (step 136) and if found to be below the masking threshold set for that band then the subband is considered to be inaudible and removed from the mixing process (step 138) otherwise the subband is deemed to be audible and is kept for the mixing process (step 140).** The current process only considers masking effects in the same subband and ignores the effects of neighboring subbands. Although this reduces performance somewhat, the process is simpler and hence much faster as required in an interactive real-time environment.

The above portions of McDowell merely describe how the system measures the audio level to determine whether a sub-band is inaudible, in which case it is removed from the mixing process; only if the sub-band is deemed audible is it kept for the mixing process.

However, as the Office Action admits, McDowell fails to disclose triggering an alarm when a threshold is exceeded, and McDowell fails to disclose that thresholds are set to generate an alarm based on loss of the audio signal or when an average level of the audio signal is too high or low.

Nonetheless, the Office Action asserts that Friedman discloses triggering an alarm when a threshold is exceeded, and the Office Action asserts that Frlan discloses that thresholds are set to generate an alarm based on loss of the audio signal or when an average level of the audio signal is too high or low.

However, the portions of Freidman cited by the Office Action only include the following:

> Friedman: column 10, line 65-column 11, line 7
>
> The RF signal radiated from the rod antenna 18 will be detected by the vertical antenna wire 85 in the shoulder strap 78b of the alarm unit 50. The signal is detected by the FM receiver circuit 208 and the modulated audio tone at frequency F.sub.T2 is amplified by the circuit 210 and bandpass filtered by the filter circuit 212 for threshold detection by the circuit 216. **If the level of the received and detected tone signal exceeds the preset threshold, the alarm select circuit 220 is triggered** and the transmit latch circuit 206 is set to close the transmit switch 204 and to energize the RF transmitter part of the alarm unit 50 (FIG. 12).

The portions of Friedman cited by the Office Action merely describe how the portable alarm unit receives the signal that then triggers the portable alarm unit. This occurs in the context of a personal safety guard system for a stray person or pet, where a guardian transmits a signal from a hand-held unit carried by the guardian that is received by a portable alarm unit worn by the person or pet under the guardian's supervision, and the alarm unit operates to alert the wearer and others nearby that the guardian is looking for them. However, such a context is completely different from Applicants' claims.

Similarly, the portions of Frlan cited by the Office Action only include the following:

> Frlan: column 9, lines 49-54 (actually, lines 46-54)
>
> 5. A mobile station according to claim 1, further comprising circuitry for detecting during operation in BSE mode a supervisory audio tone sent by the other mobile station during the direct communication, for switching the mobile station from BSE mode to normal mode on detecting loss of the supervisory audio tone and **for sending a signalling tone to the base station on detecting loss of the supervisory audio tone thereby to advise the mobile switching center of termination of direct communication.**

The above portions of Frlan cited by the Office Action merely describe how the mobile phones communicate with each other using a supervisory audio tone (SAT), wherein loss of the SAT indicates that one of the phones has hung up and the call should be terminated. This occurs in the context of providing direct communication between a pair of mobile phones over a single voice channel, as well as a novel mobile phone equipped with the capability to function in a so-called base-

station-emulation (BSE) mode. However, like Friedman, such a context is completely different from Applicants' claims.

Consequently, even when combined, the McDowell, Friedman and Frlan references do not teach or suggest the automatic measurement of audio presence and level by direct processing of a data stream representing an audio signal, without reconstructing the audio signal, in order to compare the measured audio level against one or more thresholds and then trigger an alarm when one of the thresholds is exceeded, wherein the thresholds are set to generate the alarm based on loss of the audio signal in the data stream, or when an average level of the audio signal in the data stream is too high or too low, in order to monitor the audio presence and level within the data stream and to adjust the audio level as desired within the data stream.

Applicants' attorney again submits that the teachings of McDowell, Friedman and Frlan are sufficiently different from one another that it is only by hindsight that the Office Action could suggest that they form an operable combination. Indeed, a person having ordinary skill in the art could not combine McDowell, Friedman and Frlan in the manner suggested by the Office Action to make a workable apparatus, and certainly not an apparatus that performs the functions or steps of Applicants' claims.

The remaining references, namely Fiocca, Kallergis, Smith and Pai, fail to overcome the deficiencies of the combination of McDowell, Friedman and Frlan. Recall that Fiocca, Kallergis, Smith and Pai were cited only against dependent claims, and only for teaching limitations found in the dependent claims, not the independent claims.

Thus, Applicants' attorney submits that independent claims 1, 10 and 19 are allowable over the references. Further, dependent claims 2, 4-8, 11, 13-17, 20 and 22-26 are submitted to be allowable over the references in the same manner, because they are dependent on independent claims 1, 10 and 19, respectively, and thus contain all the limitations of the independent claims. In addition, dependent claims 2, 4-8, 11, 13-17, 20 and 22-26 recite additional novel elements not shown by the references.

III. Conclusion

In view of the above, it is submitted that this application is now in good order for allowance and such allowance is respectfully solicited.

Should the Examiner believe minor matters still remain that can be resolved in a telephone interview, the Examiner is urged to call Applicants' undersigned attorney.

Respectfully submitted,

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